

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Vaalco Energy (USA) Inc.

Well Name/Number: EPU 133H

Location: NW NE Section 10 T28N R51E

County: Roosevelt, **MT;** **Field (or Wildcat)** Wildcat (East Poplar)

Air Quality

(possible concerns)

Long drilling time: No, 20 to 30 days drilling time.

Unusually deep drilling (high horsepower rig): No, Triple derrick drilling rig to drill a single lateral horizontal Three Forks Formation test, 12,000'MD/7,154'TVD.

Possible H2S gas production: Yes possible H2S gas production from the Mississippian Formations.

In/near Class I air quality area: Yes, Class I air quality area, Fort Peck Indian Reservation.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Triple derrick drilling rig to drill a single lateral horizontal Three Forks Formation test, 12,000'MD/7,154'TVD. No special concerns.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, freshwater and freshwater mud system on surface hole, salt saturated mud system from surface casing shoe to 9 5/8" first intermediate casing hole to 6200'. Oil based invert drilling fluids will be used to drill from 6200' to 7600', second intermediate casing depth and oil base invert drilling fluids will be used to drill the horizontal lateral from 7600' to total depth.

High water table: No high water table anticipated in this area.

Surface drainage leads to live water: Yes, closest surface drainages are unnamed ephemeral tributary drainages to the Poplar River about 1 mile to the northwest and north from this location. Also the Poplar River is about 1.5 miles to the west northwest from this location.

Water well contamination: No, closest water wells are groundwater monitoring wells. No domestic and/or stock water wells within a 1 mile radius of this location. Surface hole will be drilled with freshwater and surface casing set and cemented back to surface from 1,100' to protect any groundwater.

Porous/permeable soils: No, sandy silty clay soils.

Class I stream drainage: Class I stream drainage in the area is the Poplar River.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

- ☒ Closed mud system
☒ Off-site disposal of liquids (in approved facility)
☐ Other: _____

Comments: 1,100' of surface casing cemented to surface is enough surface casing to cover the Judith River Formation.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None anticipated.

High erosion potential: No, small cut up to 5.7' and small fill, up to 2.5' required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, a large location for a well of this depth, 450'X500' location size required.

Damage to improvements: Slight, surface use is a cultivated field.

Conflict with existing land use/values: Slight

Mitigation

- ☐ Avoid improvements (topographic tolerance)
☐ Exception location requested
☒ Stockpile topsoil
☐ Stream Crossing Permit (other agency review)
☒ Reclaim unused part of wellsite if productive
☐ Special construction methods to enhance reclamation
☒ Other: Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28)

Comments: Using existing county asphalt road, FAS251 (RY) Road and existing unnamed county road. Will construct about 190' of access road into location off existing east-west county gravel road. Oil based invert drilling fluid will be recycled. Salt based drilling fluids and completion fluids will be hauled to a commercial Class II disposal. Cuttings will be left in the lined cuttings pits. A separate pit will be constructed for the salt mud cutting and the oil based invert drilling cuttings. Cuttings will be mixed with flyash or ag lime and will be buried in the lined pit after being allowed to dry. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: No residences within a 1 mile radius around this location.

Possibility of H₂S: Possible H₂S, slight chance.

Size of rig/length of drilling time: Triple drilling rig 20 to 30 days drilling time.

Mitigation:

- ☒ Proper BOP equipment
☐ Topographic sound barriers
☐ H₂S contingency and/or evacuation plan
☐ Special equipment/procedures requirements
☐ Other: _____

Comments: Proper operational BOP and adequate surface casing cemented to surface should mitigate any problems. No concerns.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Threatened, endangered or candidate species identified are the Pallid Sturgeon, Least Tern, Black-footed Ferret and Piping Plover. Candidate species is the Sprague's Pipit and Greater Sage Grouse. NH tracker website lists one (1) species of concern: Great Blue Heron. NH tracker website lists one (1) potential species of concern: Tennessee Warbler.

Mitigation:

___ Avoidance (topographic tolerance/exception)

___ Other agency review (DFWP, federal agencies, DSL)

___ Screening/fencing of pits, drillsite

___ Other: _____

Comments: This location is on private land in a cultivated field. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation

___ avoidance (topographic tolerance, location exception)

___ other agency review (SHPO, DSL, federal agencies)

___ Other: _____

Comments: Private cultivated surface lands. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

___ Substantial effect on tax base

___ Create demand for new governmental services

___ Population increase or relocation

Comments: Well is a wildcat oil well in the East Poplar Oil Field. No concerns.

Remarks or Special Concerns for this site

Well is a a single lateral horizontal Three Forks Formation test, 12,000'MD/7,154'TVD in the existing East Poplar Oil Field. No concerns.

Summary: Evaluation of Impacts and Cumulative effects

No significant long term impacts expected, some short term impacts are expected.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: May 17, 2012

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website
(Name and Agency)
Roosevelt County water wells
(subject discussed)
May 17, 2012
(date)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Roosevelt County
(subject discussed)

May 17, 2012
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T28N R51E
(subject discussed)

May 17, 2012
(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____